Project Fact Sheet

Evaporative Cooling of Geothermal Power Plants with Recycled water

GOAL

- Increase power production by up to 10 MWe during the summer months by utilizing evaporative cooling.

PROJECT DESCRIPTION

This project will increase power production of the combined G1/G2/G3 power plants by up to 10 MWe during the summer months by modifying the existing power plants to utilize evaporative cooling. Phase 1 testing of this project will include the evaluation of three different evaporative cooling technologies. Phase 2 of this project is the construction of permanent power plant modifications and the needed support systems to utilize evaporative cooling. Mammoth Pacific Limited Partnership (MPLP) owns and operates three geothermal binary power plants with a combined on-line power generation of 32 MWe.

BENEFITS TO CALIFORNIA

This project benefits California and electricity customers by providing increased production of up to 15 GWhs of emission free electricity per year. The increased generation will come from a clean, renewable, non-fossil fuel source. California's air quality will be improved, saving the equivalent emissions of 15,450,000 lbs., of CO2 from a gas turbine. This increased output will not emit any sulfur or nitrogen oxide emissions.

This project will improve California's electricity reliability in the near term by 1) supplying increased power, 2) reducing consumption by lowering electrical demand, 3) reducing the state's reliance on fossil fuels; and, 4) supplying more electricity from an existing facility, mitigating environmental impacts of new plant construction. The project has the potential to supply sufficient electricity for up to 10,000 households during the hottest hours of the day. The pipeline will also supply MPLP more than 800 gpm of secondarily treated waste water during the summer months for the power plants and evaporative cooling systems.

The modification of the existing power plants is of high interest to the entire power industry and may lead to a new more efficient use of water, and construction of more efficient power plants. The demonstration of this technology can significantly increase cost/value, reliability and quality of electricity.

The project also adds value added components to geothermal power development by using power plant rejection heat. During the winter months, recycled wastewater from Mammoth Community Water District's (MCWD) will be pumped to MPLP facilities. The recycled waste water will be heated and returned as supplemental heat to the MCWD digesters. In addition, the recycled wastewater will be piped to the City of Mammoth Lakes as a heat source for district heating. District heating can reduce electrical resistive power consumption and improve local air quality.

Project construction, such as the evaporative cooling system, pipeline, building foundations, interiors, painting, landscaping, paving, grading, fencing and general labor will be done with local labor. Payroll is estimated to be slightly below $1,000,000. Local purchases of supplies and services would exceed $100,000. Tax revenues to the county would also increase.

FUNDING AMOUNT

Commission	$1,000,000
Match	$4,571,678

PROJECT STATUS

Ongoing.

FOR MORE INFORMATION

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